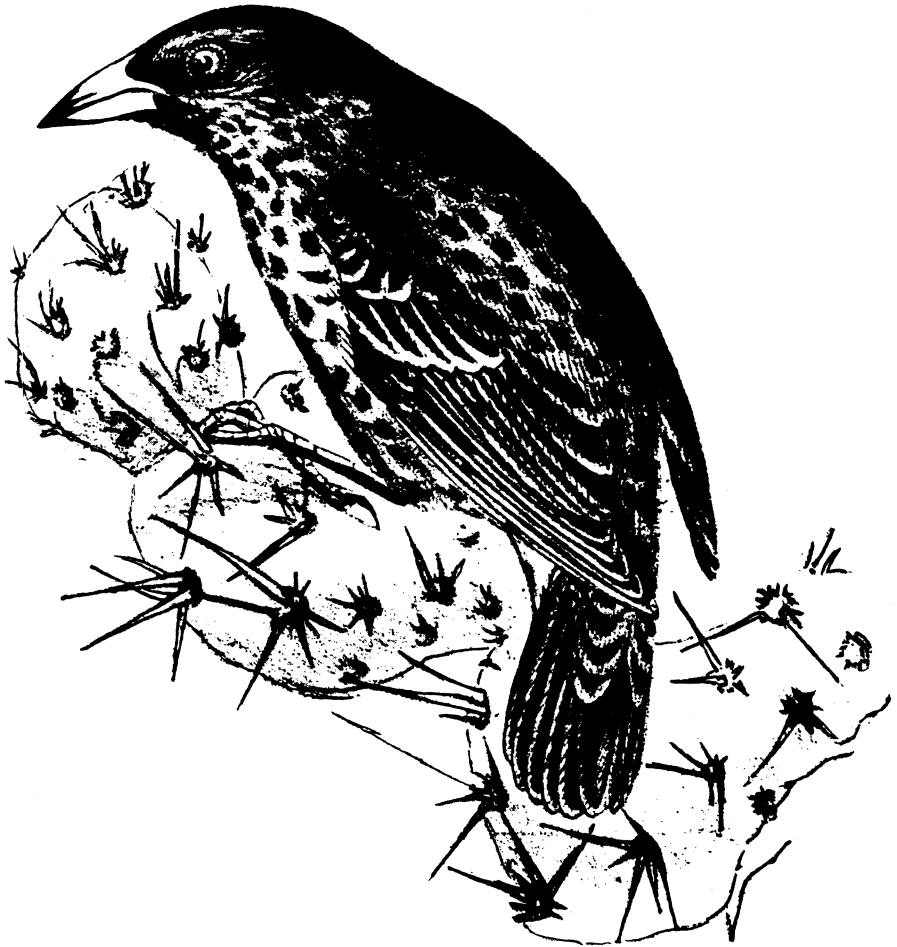


# BIBLICAL CREATION



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*Cover Illustration:* Cactus ground finch, *Geospiza scandens*. Natural size,  
from John Gould's plate in *Zoology of the Voyage of the Beagle* (1841).

### Editorial: The American Space Shuttle Tragedy

For once I had arrived home early from work. The children were watching TV. Suddenly Rachel dashed into the kitchen: 'The American space shuttle has exploded in mid-air; the astronauts are all killed.' Moments later we joined millions around the world watching the replay of the launch and the following scenes of tragedy, as *Challenger* was reduced to twisting trails of debris stark against the clear Florida sky. Quite apart from the dramatic circumstances sudden death is an awesome event. Seven souls plunged instantly into eternity. Did any of them know the Lord, before whom they must render account? For several of these men and women the launch into space was a first-time experience. What would it be like? We little thought they would suddenly pass into that transcendental 'hyperspace' of the presence of the Judge of all the earth.

I thought back to President Kennedy's announcement of the inauguration of the US lunar landing programme. In the early 1960s I thought he was plain wrong. Man would never reach the lunar surface and return. But I was mistaken. I underestimated the plan and providence of God which enabled some of his image-bearers to journey to the moon and safely return to earth. Again I thought of the accident that happened to one of the US lunar space-craft on its journey from earth. That time the crew safely returned and TV showed us their parachute open as the tiny capsule plunged towards the ocean waters below. On the waiting rescue vessel the US Naval chaplain's thanksgiving prayer acknowledged 'the grace of God which through the skill of many men turned near-tragedy into deliverance.'

My friend Dr. Vern Poythress has carefully defined *heaven* as 'that part of creation not accessible to the ruling powers of men made of dust.' Each word is important. Heaven not only means the transcendental heavens of God's immediate presence, but also the 'nearer' heavens of the starry sky. And the leading characteristic of heaven, in the Scriptures, is its inaccessibility to mortal man. (See *BC 15*; 51-54). We must be cautious in defining the 'lower boundary' of heaven. Perhaps we should envisage this at the edge of the solar system unless and until men journey far beyond. But most of us belong where we can live and breathe without carrying a life support system. Even the mountains — peaks of earth, as images of heaven and eternity, are inaccessible to many. Nevertheless it is our 'ruling powers' only which cannot subdue the stars and the highest mountains. In imagination and faith we mortals may think about them,

ponder the power of God that has made them and trace the laws according to which he governs them. Moreover it is mortal men and women, the sinful children of Adam, to whom heaven is inaccessible. But the New Testament tells us of a Man from heaven, the last Adam: ‘The first man was of the dust of the earth, the second man from heaven’ (*1 Corinthians* 15:47). God has already subjected the entire universe to the ruling powers of this Jesus (*Ephesians* 1:22; *Hebrews* 2:8-9), and those who belong to him are destined to follow him wherever he goes (*Revelation* 14:4).

\* \* \* \* \*

The practical status of ‘evolution’ in the minds of men has suffered a setback through the shuttle tragedy. We mourn the deaths of those brave men and women, but we must also admire the kingly wisdom and discretion of God. Men’s motives are mixed and there are echoes of Babel here. God’s government of the world brings daily lessons for those who will learn.

**David Watts**

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## **Darwin's Finches**

**Susan Coleman**

### **Introduction**

This is a very important subject for us to investigate, because Darwin's finches are supposed to provide one of the main pieces of evidence for evolution.

Whilst preparing this paper, my attention was drawn to an article by Michael Ruse in the 27th May '82 issue of the New Scientist, which had this to say on the subject ...

'Consider for instance, the finches of the Galapagos, which from Darwin on have been a major brick in the evolutionary edifice. Creationists usually ignore them entirely — undoubtedly a deliberate omission, given the prominence of Darwin's finches in evolutionary writings. When they are mentioned, it is claimed that they are all the same species. A flat lie.'

Well now, at any rate, the finches will not be ignored and hopefully we will arrive at a clearer understanding of the situation, such that we will be better equipped to promote creationist teaching and refute the evolutionary position.

### **The Evolutionary argument from the finches**

Let us firstly consider how the finches came to be used as evidence for evolution. Popular evolutionary writings would have us believe that when Darwin visited the Galapagos Islands, he was instantly struck by the differences between the finches and that, in attempting to account for these differences, he arrived at the

theory of natural selection as the mechanism for evolution. I am not suggesting that it is claimed the finches *alone* were responsible for Darwin's proposals, but it is claimed that they played a significant part. We read such things as ...

'He could no longer believe that God had separately created each of these thirteen species of finch, thirteen species that looked so much alike. The finches could only be the descendants of some South American finch, the ancestral finch that had migrated long ago to the islands. There on the empty archipelago, living in utter isolation, the finches of countless succeeding generations had gradually developed beaks of different sizes for use in gathering the different types of food to be found on each island. The thirteen separate species had not been created; they had evolved by themselves!'

True, it was impossible to imagine how this transformation had taken place, but *when Darwin looked at those finches*, he knew that the transformation had actually occurred ... (Charles Darwin and the Origin of Species, by editors of Horizon Magazine, author Walter Kamp).

Did it *really* happen that way? Did the penny really drop in Darwin's mind as he observed the finches? Loren Elseley in his book 'Darwin's Century' writes ...

'In the end Darwin wrote regretfully of his many species of finches that although he suspected certain of the distinct types were not confined to separate islands he "was not aware of these facts till my collection was nearly completed." ' ... which clearly hints that the evidence from the finches did not strike Darwin immediately.

As David Lack (in his book Darwin's Finches, 1947) points out, the finches were not mentioned in Darwin's private diary of the voyage (he quotes Barlow 1933) and that even in the first published edition of the Journal in 1839 they receive only brief notice — without particular comment. However, in the second Journal published in 1845 — about 8 years after his return, Darwin said ...

'The perfect graduation in the size of the beaks in the different species ... seeing this graduation and diversity of structure in one small intimately related group of birds, one might really fancy that from an original paucity of birds in this archipelago, one species had been taken and modified for different ends.'

## Darwin's Finches: Coleman

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The above supports what S.J. Gould had to say in his article 'Darwin's Deceptive Memories' (*New Scientist*, 21st February 1980) that ...

- (i) Darwin *at the time* did not recognise the finches as variants of a common stock. In fact he didn't even record the island of discovery for many of them, some of his labels just read 'Galapagos Islands'. He did not, therefore, immediately recognise the rôle of isolation on the formation of new species. The evolutionary tale was reconstructed only after his return to London when a British Museum ornithologist correctly identified all the birds as finches.

So,

- (ii) Darwin did not return to London with an evolutionary theory. He suspected the truth of evolution, but had no mechanism to explain it.
- (iii) It was not the finches (or any other biological evidence) that clinched the mechanism for evolution in Darwin's mind; rather for 15 months to 2 years after his return, he read and pondered on many works by economists and politicians and it was these which ultimately led to his proposal of natural selection as the mechanism for evolution.

Finally, in his book 'The Origin of Species by means of Natural Selection', Darwin hardly mentions the finches, which in itself is surprising, considering their supposed influence on his thinking. However, he does make a comment which is worth bearing in mind as we study the finches ...

'Many years ago, when comparing and seeing others compare, the birds from the separate islands of the Galapagos Archipelago, both with one another, and with those from the American mainland, I was much struck *how entirely vague and arbitrary is the distinction between species and varieties*'. (my emphasis).

### The Galapagos Islands and Galapagos Finches

*The Galapagos Islands* (figure 1) lie on the equator in the East Pacific, 600 miles from Equador and 1,000 miles from Panama. The island Cocos and the rock Malpelo, both lie about 600 miles to the north east. There is no land mass to the west for about 300 miles.

There are about 13-16 islands (the exact numbers depending upon the definition of island according to its size) and about 55 rocks and islets. The largest island is Albemarle, which is about 80 miles long and its highest point is about 4,000' above the sea. Several of the islands are between 10 and 20 miles across and rise to a height of 2,000 - 3,000 feet. The islands are volcanic in origin, but it is not known whether they are a single land mass, only part of which is above sea level, or whether all were formed and uplifted separately.

All the islands look much alike and volcanic activity still occurs on some of them — giving a fire-seared landscape of lunar aspect, which looks grim in some places, with cinders, ash and fresh-looking evidence of molton lava. The chief variations of aspect are due to differences in altitude and the time of the last volcanic activity. Cocos, where one of Darwin's finches occurs, is quite different. It is a typical tropical island with a warm, moist climate and a rich forest coming down to the sea. The rainy season on the other islands is from mid-December to early March, but it is variable, sometimes it lasts until June, but other years there is hardly any rainfall.

As the above description suggests, there is a paucity of habitats on the islands — only being three distinct types; arid zone woodland, humid zone woodland and mangroves occurring locally. There are various transitional zones between the arid and humid zone woodland.

*The Galpagos finches* are dull grey-brown short tailed birds with fluffy rump feathers. In some species (and I shall be using the generally accepted terminology for this section) the two sexes are alike, whereas in others the male may be distinguished by varying amounts of black feathering while the male warbles finch (*Carthidea*) has an orange tawny throat. Their size varies from that of a small warbler to a very large sparrow. They are similar in many ways — e.g. in courtship behaviour, the type of nest they build, the number and colour of the eggs they lay etc., but their feeding habits are diverse, as are their beaks which range from delicate and thin to stout and huge. It is in this area that most attention has been paid and so I would like to consider it in some detail.





Fig.1 Map of Galapagos.

In continental passerine birds, species which are closely related tend to differ from each other chiefly in plumage and are usually similar in beak and other structural characteristics. Differences in beak usually characterise the broader units, that is, the different genera.

Now, owing to the marked beak differences, Swarth in 1931 divided Darwin's finches into 6 subgroups, (although 7 have been used by other workers) which would be called genera if they were continental passerine birds. However, in most other respects, including plumage and breeding habits, some of these subgroups are closely similar to each other. Please refer to Table 1. This shows the finches divided into 4 groups by *David Lack* — whom I shall be referring to throughout this paper, as he has done a lot of research on the birds, which is well documented. However, I have also shown the alternative ways that the finches may be classified. I have numbered each species — hopefully to enable readers to refer quickly to the diagram of that species when it is discussed.

We shall concern ourselves with the two main subgroups — *Geospiza* and *Camarhynchus* — which are each supposed to consist of many different species. Please refer to figures 2 and 3.

### A) **The Ground Finches (*Geospiza*) on the main islands.**

The ground finches typically feed on the ground on seeds and with the exception of *G. scandens* and *G. conirostris* have the finchlike beaks characteristic of seed-eating birds.

All the birds breed in the arid and transitional zones except *G. difficilis* which breeds in the humid zone. As well as having a different habitat, it also feeds differently, spending much of its time digging in the litter of the forest floor. Its beak is also straighter and slightly longer than the others. (At least longer than the beaks of *G. magnirostris*, *G. fortis* and *G. fuliginosa*, relative to the body size).

Of the species in the arid zone, *G. scandens* has a different diet from the rest, depending upon the flowers and fruits of the prickly pear (although it eats seeds at times). It has a relatively long, thin beak, well enabling it to feed in this way.

*G. conirostris* has obvious affinities with *G. scandens* and replaces it geographically, but it is apparently sufficiently distinctive to merit a separate specific name.

**TABLE 1 Summary of the Subgroups of Darwin's Finches (based on Lack, 1947)**

| SUBGROUP                          | SPECIES       | COMMON NAME                                    | BEAK                                | CHIEF FOOD                       | USUAL BREEDING ZONE                |
|-----------------------------------|---------------|------------------------------------------------|-------------------------------------|----------------------------------|------------------------------------|
| <b>GEOSPIZA</b>                   | magnirostris  | 1. large ground finch                          | heavy, finch-like                   | seeds                            | Arid and transitional              |
|                                   | fortis        | 2. medium ground finch                         | heavy, finch-like                   | seeds                            | Arid and transitional              |
|                                   | fuliginosa    | 3. small ground finch                          | heavy, finch-like                   | seeds                            | Arid and transitional              |
|                                   | difficilis    | 4. sharp beaked ground finch                   | heavy, finch-like                   | seeds                            | Humid but varies with island form  |
| * possibly in subgroup CACTORNIS  | scandens      | 5. cactus beaked ground finch                  | long, decurved                      | Opuntia (prickly pear cactus)    | Arid and transitional with Opuntia |
| * possibly in subgroup CACTORNIS  | conirostris   | 6. large cactus ground finch                   | long, decurved                      | Opuntia (prickly pear cactus)    | Arid                               |
| <b>CAMARHYNCHUS</b>               | psittacula    | 8. large insectivorous tree finch              | thick, short, and somewhat decurved | insects                          | Transitional & humid               |
|                                   | pauper        | 9. large insectivorous tree finch (on Charles) | thick, short and somewhat decurved  | insects                          | Transitional & humid               |
|                                   | parvulus      | 10. small insectivorous tree finch             | thick, short and somewhat decurved  | insects                          | Transitional & humid               |
|                                   | crassirostris | 7. vegetarian tree finch                       | thick, short and somewhat decurved  | buds, leaves & fruit             | Transitional & humid               |
| * possibly in subgroup PLATYSPIZA | pallidus      | 11. woodpecker finch                           | stout, straight                     | insects, esp. from wood          | Transitional & humid               |
| * possibly in subgroup CACTOSPIZA | heliobates    | 12. mangrove finch                             | stout, straight                     | insects, esp. from wood          | Coastal mangroves                  |
| * possibly in subgroup CACTOSPIZA |               |                                                |                                     |                                  |                                    |
| <b>CERTHIDEA</b>                  | olivacea      | 13. warbler finch                              | slender                             | small insects & nectar in season | Arid, transitional & humid         |
| <b>PINAROLOXIAS</b>               | inornata      | 14. Cocos finch                                | slender                             | insects                          | Cocos forest                       |

\* alternative classification

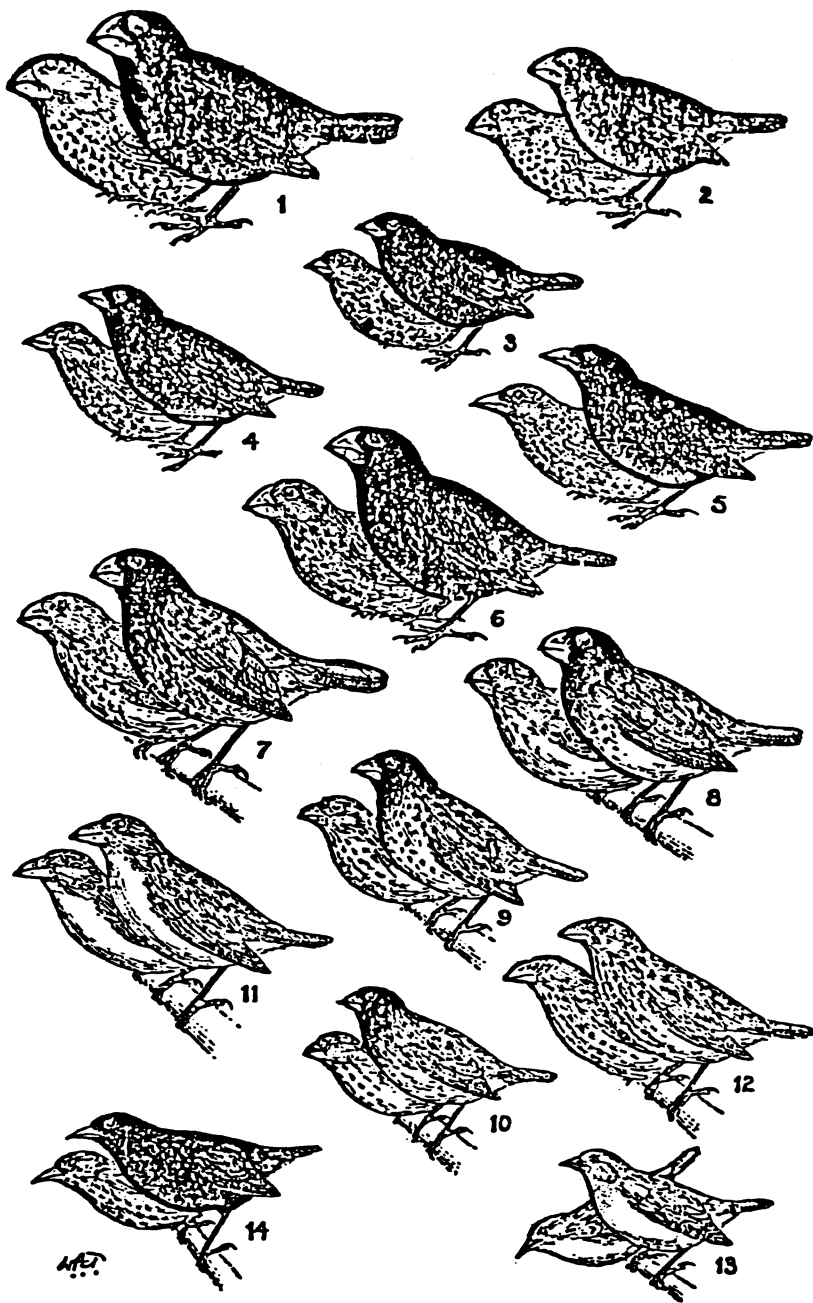


Fig.2 Darwin's finches; male and female of each species, with numbers as in Table 1. About  $\frac{2}{3}$  natural size.

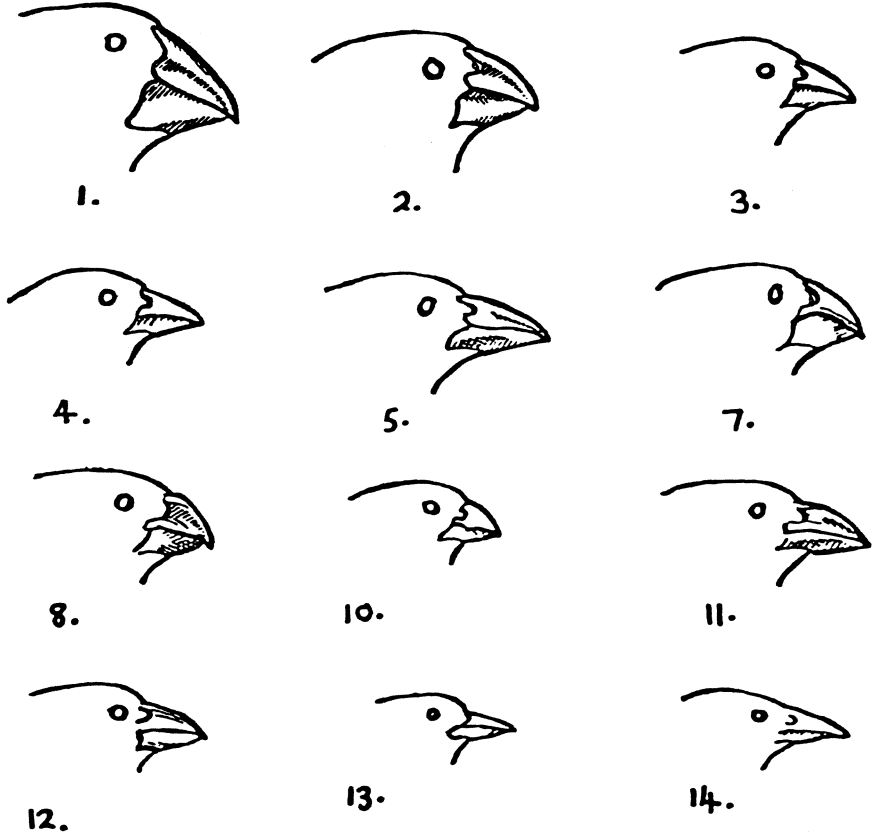


Fig.3 Beak differences in Darwin's finches on central islands, with numbers as in Table 1. About  $\frac{2}{3}$  natural size (after Swarth).

*G. magnirostris*, *G. fortis* and *G. fuliginosa* differ from each other solely in size and relative size of beak (figure 4).

This shows that the measurements of the beaks fall into 3 groups, each centred round a particular mean value, while individuals with intermediate measurements are very scarce. Each group feeds differently. *G. fuliginosa* with its small, narrow beak eats mainly small and soft seeds.

*G. fortis* with its medium-sized beak, eats larger and harder seeds, whereas *G. magnirostris* with its large deep beak takes a high proportion of the larger and especially the harder seeds, eaten by *G. fortis*. In other words, there appears to be a direct correlation between the size of the beak and the size of seed eaten.

Note that *G. fortis* has an exceptionally variable beak. Furthermore, it has been found that the smaller individuals of *G. fortis* tend to take smaller and softer seeds than larger individuals and overlap in diet with *G. fuliginosa* whereas the larger individuals overlap in diet with *G. magnirostris*. Lack suggests (although Bowman disagrees) that the limits of beak size of *G. fortis* have been determined through interspecific competition.

The beaks of the *Geospiza* species present on any one of the outlying islands, differ from each other to a greater extent than do those on the larger, central islands. Although detailed observations of food have not been made on these outlying islands, it is suggested that each species takes mainly different foods.

### B) ***Camarhynchus* on the main islands.**

The insectivorous tree finches (*C. psittacula*, *C. pauper* and *C. parvulus*) breed especially in the humid zones of the larger islands. They feed chiefly in the trees and are agile in their movements rather like tits, sometimes turning almost upside down in their search for food. They feed on the ground at times. *C. parvulus* searches the leaves and twigs for insects on their surface and also strips off small pieces of bark for insects underneath (like the Blue tit).

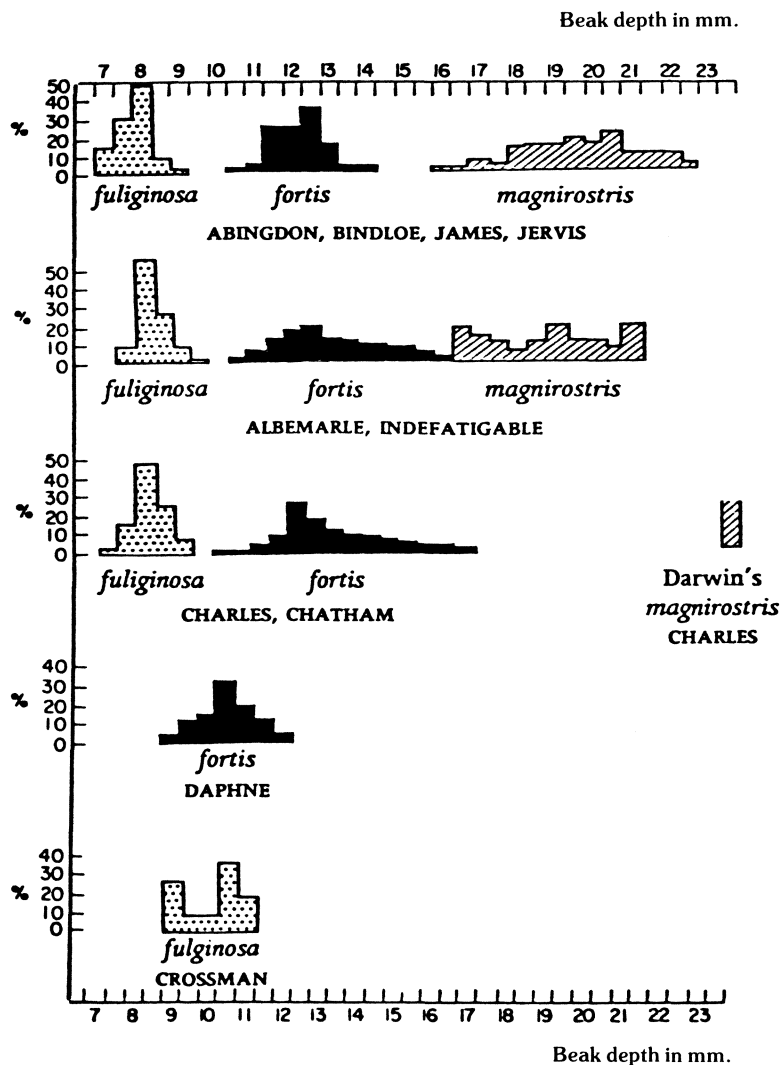


Fig.4 Histograms showing beak depth of the different species of finches on different Galapagos islands.

Bowman (1961) found that the large insectivorous tree finch *C. psittacula* which has a proportionately larger and deeper beak, with a strongly decurved culmen, spends less time on the small twigs and proportionately more time stripping off bark, including bark from larger twigs and branches than those searched by *C. parvulus*.

Using its strong beak, it also tears small twigs apart in its hunt for concealed insects. As a result it takes mainly larger larvae and other insects than *C. parvulus* and in part takes them from different places, although there is some overlap in diets. (In tits, likewise, the larger species feed on larger branches and take larger insects than the smaller).

*C. crassirostris* has a short, thick, somewhat decurved and slightly parrot-like beak — with which it feeds primarily on leaves, buds, blossoms and fruit. It rarely takes insects and was not seen to eat grain, although it takes certain types of seeds. It feeds mainly in the trees, but comes to the ground to take young leaves of herbaceous plants and fallen fruit.

*C. pallidus* (the woodpecker finch, figure 5) is of similar overall size to *C. psittacula* and occupies the same habitats. However, it has a chisel-shaped beak (longer and much straighter than *C. psittacula*) with which it digs trenches in decaying wood rather than tearing off bark, although it does spend part of its time hunting for insects under bark on branches like *C. psittacula*. By holding a small stick, or cactus spine, lengthwise in its beak, the woodpecker finch is able to probe deep into crannies to obtain food. It also climbs and feeds on vertical trunks which *C. psittacula* does not do. Hence Bowman found that while part of its prey is the same, much is different, including large dipterous larvae, which live in decaying wood and can only be reached by trenching and probing.

The mangrove finch *C. heliobates*, is very similar to *C. pallidus* in that it takes insects from under bark and probes with a stick in its beak, but is restricted to coastal mangroves and is therefore separated by habitat.

In the *Camarhynchus* group, as in *Geospiza*, the beak tends to be modified in some of the forms on the outlying islands.



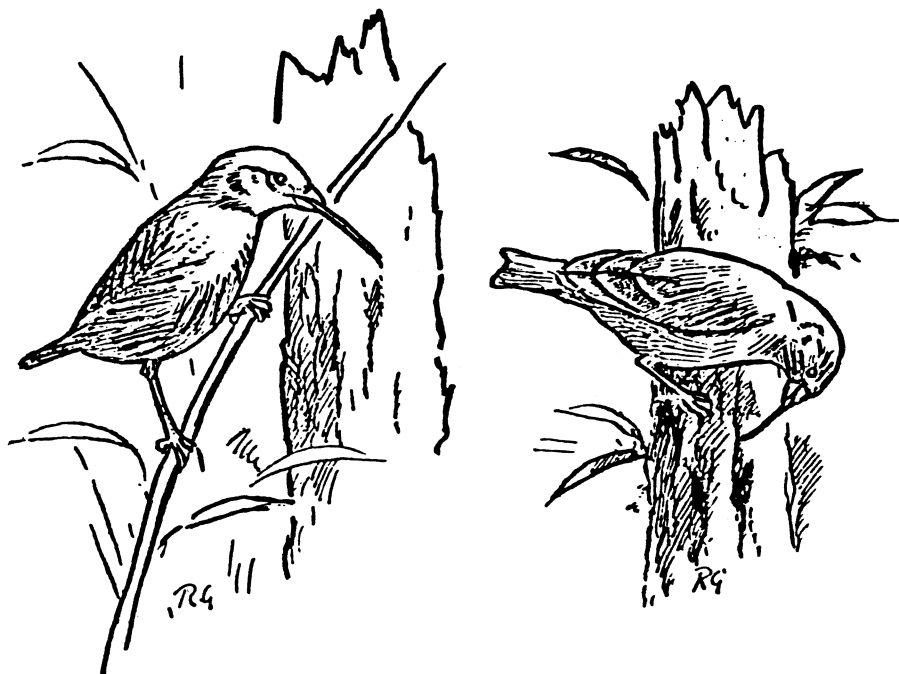


Fig.5 *Camarhynchus pallidus* and its stick. (Drawn by Roland Green from photographs by R. Leacock)

### Interpretation

The above then is a summary of what appears to be known about the different finches living on the Galapagos Islands. From this information, I should like to consider the following questions: how different are the finches? What caused these differences? What should we, as creationists, believe?

#### 1 . ‘How different are the finches?’

We have seen that the finches have been divided into at least four groups, designated genera, on account of their differences in beak structure and feeding habits. As has already been mentioned, plumage differences occur between different species in continental passerine birds and it is the beaks which are chiefly important in distinguishing between genera, whereas in Darwin’s finches, there is little variation in plumage between species (only beak differences). The really difficult problem concerns the definition of a species. No entirely satisfactory workable definition has been found, but the one which is most commonly quoted and applied concerns interbreeding. If two forms breed together quite naturally (and produce fertile offspring) they are said to be members of the same species, whereas two forms which breed in the same region without normally interbreeding, are always classed as members of separate species, *however similar they may be in appearance*. The definition of subspecies of the same species, is that they always breed in separate geographical regions and when their respective breeding zones adjoin, they often interbreed and intergrade in characters. Difficulty arises with this definition if supposed subspecies have no opportunity to breed.

According to Lack, a careful watch was kept throughout the breeding season of 1938-9 for possible cases of interbreeding amongst Darwin’s finches. Apparently none were observed, nor have any been recorded by Beck, Gifford or other experienced collectors working in the Galapagos

Clear hybridization appears to be rare, if not absent altogether. Captive ground finches (*Geospiza*) brought to California, bred freely with members of the same species, but not with individuals of a different species. However, some have found that birds of the *same* species are not altogether willing to breed in captivity and therefore testing in this way may be somewhat unsatisfactory.

The interbreeding definition may be helpful, but it has its limitations and may not alone be sufficient to classify species.

Firstly, it is surely possible for certain variant forms to refuse to breed, even if they are able to do so. We find that in humans there is greater tendency for members of the same race to marry rather than members of different races. Of

course I realise that there are many factors involved in this and would not wish to be simplistic — but by the same token, factors, of which we may not be fully aware, may be at work to determine breeding limits in other living things.

Secondly, we have already said that the ground finches *G. magnirostris*, *G. fortis* and *G. fuliginosa* differ from each other solely in the size and relative size of their beaks and that they do not appear to breed with one another in the wild. Yet, according to Lack, they regularly give rise to individuals, which are extremely similar to each other in all external characters, while very occasionally individuals arise *which are so intermediate in appearance, that they cannot safely be identified!* Lack says this is ... 'a truly remarkable state of affairs. In no other birds are the differences between species so ill defined' ... (Lack, *Darwin's Finches*, 1947).

Although in one sense the species definition holds good (i.e. no interbreeding) it appears to be totally meaningless in this situation. Likewise where Lack says ... 'An unusually small specimen of a large species and an unusually large specimen of a small species (of a related species) and a hybrid between them might well be indistinguishable in appearance ...' (Lack, *Darwin's Finches*, 1947).

One also has to question the validity of classifying the insectivorous tree finches into separate species. Here, differences are chiefly in size, rather than shape of the beak and the birds concerned have very similar feeding habits — birds with larger beaks take larger insects whilst birds with smaller beaks take smaller insects.

In spite of these facts and the comments Lack himself has made, he still nevertheless considers the birds to be members of separate species and his explanation is 'that all fourteen species evolved from a common ancestor and they are so *like each other* except in beak, that this evolution was evidently recent.' (Lack, *Ecological Isolation in Birds*, 1971).

Walter Lammerts — a creationist — acknowledges that different forms do exist, but he calls them *races* rather than species or genera, and likens them to the tribes of Indians existing in N. America before Columbus discovered it. Although the birds have different song patterns, he quotes Orr in his claim that the basic song is the same, and Lammerts likens the differences in song patterns to variations in language. Furthermore, he makes the valid point that these species (so called) are by no means comparable in distinction to the basic species as in the genus *Rosa* or *Prunus* of the family *Rosaceae*. Lammerts also questions whether the families, genera and species of *all* mammals and birds are based on a lower order of diversity than those existing in plants.

It would therefore seem that the present classification of the Galapagos finches is not altogether satisfactory. In fact, until our knowledge of the Biblical term 'kind'

(in Genesis 1) is more fully understood and until present definitions of species and genera etc. are brought into line with this, we will struggle to make progress interpreting many biological situations.

'Kinds' are distinguished by their lack of interbreeding and the production of fertile offspring, but we do not know how these broad units may be subdivided and whether that may involve limited interbreeding between certain subunits.

The finches are clearly closely related, but in the light of the above, it is difficult to be dogmatic as to their *exact* classification. However, it would not be unreasonable for anyone to suggest that they may be members of the same species (or at least some of them). What is totally *unreasonable* is Michael Ruse's comment that any such claim would be a flat lie.

## 2 What caused these differences?

The mainstream evolutionary explanation is that a few finches managed to migrate to the Galapagos Islands from an ancestral stock upon the South American mainland. In positions of isolation from each other and from the mainland and in the absence of competition from other birds, they 'evolved' differences enabling them to occupy all the available ecological niches. Hence speciation, based on different feeding habits, occurred. Apparently today in 71% of instances, the finches species are separated from each other by feeding as opposed to by habitat or by range.

Lack has proposed details of how exactly this occurred. Firstly, he points out that in order for any two species to coexist, they must differ in ecology — at least with respect to those resources of the environment which determine their numbers. Secondly, as the numbers are most limited by food, it follows that they must differ in feeding habits if they are to occupy the same habitat. The ecological differences between two subspecies might be small when they first meet, but those individuals with greater differences will tend to survive better and hence natural selection will operate to produce two species which no longer compete effectively for essential resources.

Andrewartha and Birch (1955) criticise this view, pointing out that there is no evidence that competition occurred in the past and that it is uncommon today. Lack admits the last point to be true, but accounts for it by suggesting that competition is so important that 'the species concerned have evolved differences in range, habitat or feeding habits to mitigate it'. He continues ...

'If a species will be much more successful in one area or type of habitat than another, or by taking one type of food than another, there will be strong selection for behaviour by which it favours the one and avoids

the other. Nevertheless such behaviour must be reinforced by competition and natural selection at the present day, since otherwise it would disappear. There are sufficient records of a species breeding outside its normal range or habitat, and within that of another species, for one to suppose that this is happening.' (Lack, *Ecological Isolation in Birds*).

In considering mainland birds where differences in feeding habits and beaks occur between different genera — most of which have later diverged into different species with separate habitats — Lack suggests the possibility that more of Darwin's finches would have been separated by habitat if their 'evolution' had not been so recent. However, he points out that this is unlikely in view of the paucity of habitats.

Walter Lammerts emphatically rejects the idea that the variations in the beaks are 'adaptive divergencies' resulting from natural selection. He claims that the present feeding habits are the *result* of the particular type of bills the individuals happen to have inherited.

His explanation is that the finches are all one species of bird which has separated out onto the various islands resulting in a chance assortment of the original genetic variability concerning bill and body size, skull features and plumage colouration. He claims that a Sewel Wright random variation pattern would give exactly the sort of thing that is in fact found.

### 3. What should we, as Creationists, believe?

Genetic isolation and natural selection are accepted phenomena. However, their significance upon populations has always been the cause of much controversy and debate. To what extent have these two phenomena influenced the present-day populations of the Galapagos finches?

According to Lack (who by no means discounts adaptation as a force) there is a greater extent of variety between birds on neighbouring islands than one would expect if adaptation was mainly responsible, as many neighbouring islands provide very similar environments. In fact, island forms differ from each other much more strikingly than do continental forms. In Darwin's finches, there is a marked correlation between the degree of isolation and the tendency to produce peculiar forms.

Lack also lends support to the part played by isolation when he says, 'conditions are extremely similar on many of the Galapagos Islands and the differences in beak and wing length shown by island forms so often seems haphazard and pointless, that it is probable that many of these differences are genuinely unrelated to possible environmental differences.' (Lack, *Darwin's Finches*).

However, to be fair, he also suggests that certain differences may have adaptive significances, which are as yet undiscovered.

Many population geneticists would argue against the Sewel Wright (and others') view that isolation is the most significant factor in determining the genetic nature of the population in question. They show mathematically that genetic isolation could only change a population consisting of 200 individuals, assuming that natural selection was not operating. They go on to demonstrate that the genetic makeup of such a small population will not be determined at all by isolation if there is a selective advantage greater than 25%. They claim that such advantages are quite common and hence that natural selection is ultimately responsible for altering the genetic constitution of populations.

I personally do not think that either adaptation by natural selection or isolation was entirely responsible for today's situation. It seems perfectly reasonable to believe that *one* (or several) pairs of finches, preserved during the Flood, could give rise to the variety that now exists, by both genetic processes — and that it is impossible to determine the extent of the part played by each process.

Many Christians recoil from the term 'natural selection' because evolutionists use it to explain evolution. However, natural selection does occur and in fact it may be a provision of the Lord to enable a population to adapt and hence survive in a constantly changing environment, brought about by the Fall. But, natural selection does have its limitations in that it *reduces* the genetic variability within the population and therefore *could not ever* give rise to a new kind — which would necessitate more information and not less. (Many evolutionists now recognise this and natural selection, as the mechanism for evolution, has been superseded by the gene mutation theory).

Whether or not the original pair (or pairs) of post-Flood finches have given rise to different species, I do not know, nor do I think it really matters as far as creationists are concerned. The reason I say this is that however we classify the finches, the fact remains that they are all still finches and that NO genetic advancement into another kind has occurred. All that has occurred is the sifting out of information from the original finches to give rise to the varying populations today. As we have seen, the differences between the birds are so slight, that it seems incredible for evolutionists to claim that such differences indicate that evolution has occurred! After all, evolution requires the gradual change of one type of kind into another and there isn't any suggestion of this whatsoever among the Galapagos finches. In the light of this it is hardly surprising that the Galapagos finches did not instantly strike Darwin as obvious evidence for evolution.

Please refer to figure 6 for a visual summary of the conclusion.

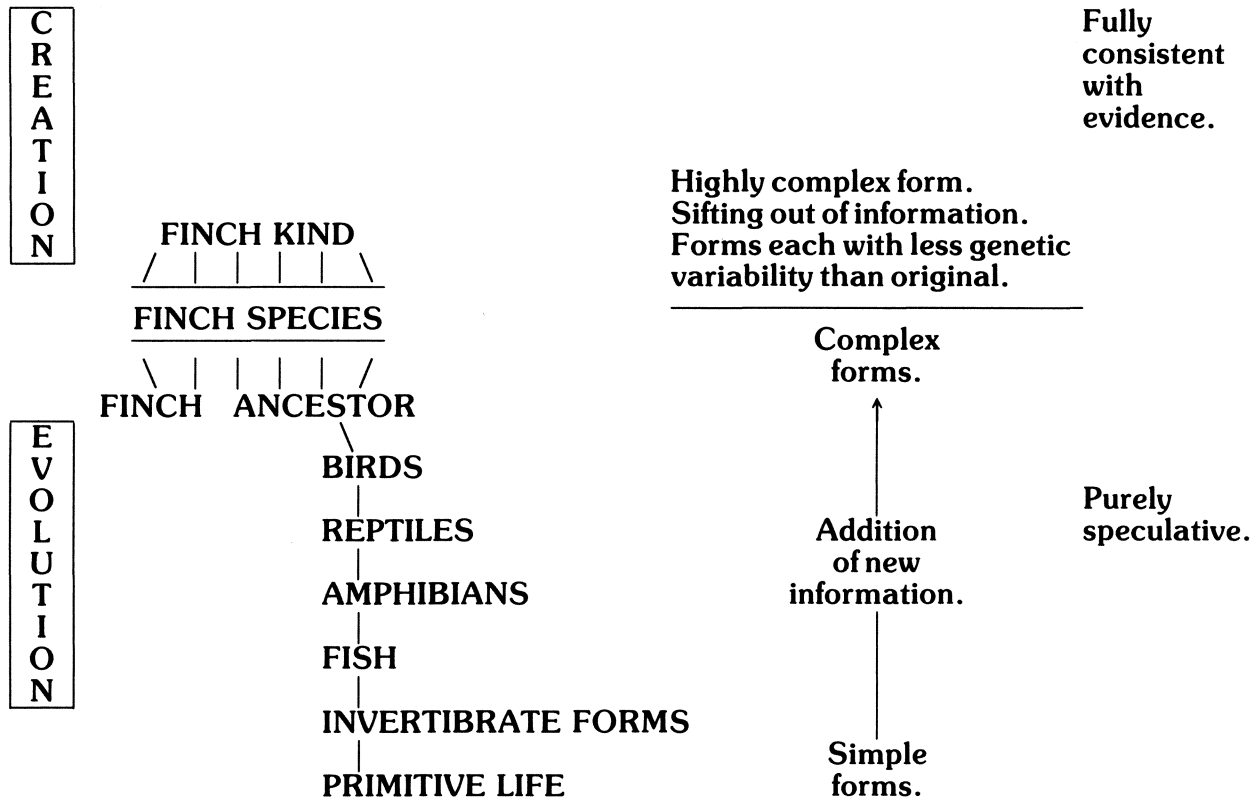


Fig.6 Visual summary of conclusions.

### The Nature of Science

**Frederick Aicken, Heinemann (1984)**

**reviewed by J.H. John Peet**

This is a well written book that gives a useful introduction to the philosophy of science. Why review it for BC? Firstly, because a correct analysis of scientific thought is important to appreciate the nature of the creation—evolution controversy. Secondly, the author unwisely enters into this battle.

He opens with Pilate's question to Christ, 'What is truth?' As Aicken says, a good question. But what is the answer? The accepted philosophic view is that it is unattainable. To the scientist it is a matter of personal perception. As one author commented on the radio recently, 'Truth is the way you see things.' While the Christian's understanding of truth is ultimately different, the author does correctly challenge the reader's attitude to his view of the 'facts'.

Aicken reviews the historical development of science, climaxing with the philosopher's distrust of experimental science. However, there is a very debatable statement on page 47. He claims that the rise of science was a result of the harnessing of the doubt that existed in the church at the time of the Reformation. He implies sympathy with the view that the scientific revolution outshone the Reformation and was more influential. One wonders if he has read the works of Hookyaas and others.

Proceeding from this to modern thought, he criticises the process of induction, following the reasoning of Popper (pages 47-49). While there is much validity in these arguments, it is not, as Aicken admits, how a lot of people, including practising scientists, actually think and work. Peirce's contribution on abduction is too often ignored and is an important balancing view and creationists could do with studying it more carefully.

Interestingly, in describing the importance of experimentation in falsifying theory, he says 'All scientific theories are open to suspicion'. Fine. But, 'Similarly we are confident that the theory of evolution is a better explanation of the facts of life than the book of Genesis' (page 49). Though he goes on to admit the inadequacy of present views, this is a peculiar statement. It does not express a



suspicion of the theory of evolution. And then, what is meant by 'better'? And Genesis does not claim to be a scientific theory — it is revelation and cannot be lightly dismissed.

Genesis may be scientifically incomplete (it is not mechanistic), but it is not wrong. Following his arguments in support of Popper, evolution cannot be falsified and so it is *not* a better theory. Contrary to common superficial thought, I would hold that deduction favours Genesis (page 63). A useful paper should be presented on 'The Scientific Implications of Genesis'. How would that affect our research? All organs would be seen to have a purpose (rather than some being vestigial), so stimulating research into them. It would affect our views on the development of species. What impact would it have on our views of genetic engineering and on life? And so on.

In continuing his discussion on the nature of religion and science, Aicken follows Popper in admitting that, though religious belief (and literary taste and moral standards) cannot be scientifically measured, this does not mean it is without value. He criticises those who behave unscientifically in trying to reject spiritual or emotional problems by application of the scientific method (page 62). The reviewer recommends this view but feels that the author, at times, falls into the same trap. Also, we may ask, 'Can religion be tested?' Certainly, the Scriptures are always encouraging us to test its claims by experimentation!

One or two strange comments creep in. 'Jehovah, a later god of Israel ...' (page 71) can be challenged on different levels, but it is significant that the *birth* of the nation of Israel *coincides* with the declaration of Jehovah's uniqueness and identification as their God. He was not a later god! The description of Christianity (along with other religions) as a myth (page 71) displays some prejudice. Since the book is dealing with another area of study (and, therefore does not explore the topic in proper depth), Aicken is ill-advised to tackle the subject. Except as a means of throwing in, almost as an aside, his own views, it contributes nothing positive to his arguments and throws suspicion on his reasoning elsewhere. The assumption appears to be that God is made in our image (page 72), whereas the Biblical teaching is the reverse. God is not the model, but *we* are: 'Let us make *man* in *our* image ...'

In describing the development of science, one cannot ignore the place of Newton. Aicken acknowledges this (page 89). Again, there is a danger of simplification, one pursued by future generations of scientists and implied by Aicken. Newton's science grew out of his Christian faith and experience. God was *not* relegated to a remote first cause by Newton, nor is He by christian scientists of today. Rather (page 91), God is out of the range of science. Or, is He? Is it not that science has been defined to exclude God and revelation? Strangely, Aicken does not appear to have defined science and so its boundaries.

According to Aicken, 'He who hath seen Me hath seen the Father' hinted that there is something of God in every man ...' (page 91). This is strange exegesis and perhaps stems from a misconception of the nature of Christ. Further, 'God is love' is *not* a personification of compassion and respect for others. The author should stick to areas in which he is qualified to write.

Aicken concludes his fascinating study by describing the need for the integration of science with the spiritual (in a broad sense of the word). He recognises the inadequacy of a world-view based on science alone. We can add the importance of morality in scientific research — and that takes us back to the law-maker. Man is not simply a scientific organism; he has a fifth dimension: the spiritual.

**Cross-currents: Interactions between Science and Faith .**

**Colin A. Russell, IVP (1985) 272 pp.**

**reviewed by David C.C. Watson**

Colin Russell is Professor of the History of Science at the Open University which is firmly committed to the dogma of Evolution. He is also a Christian, as are the publishers; so we watch with interest to see how a theistic evolutionist handles this important subject. Earlier this year we welcomed IVP's *Creation and Evolution*, which allowed three distinguished creationists to state their position — most effectively; but Russell (CR from now on), alas, seems to have taken a step backwards from toleration and balance. As one reviewer put it, he has 'no time' for creationists, in more senses than one. Of course, in a book covering 24 centuries we cannot expect full coverage of a movement which has sprung into full vigour only in the past 24 years; but we might have expected something better than to see the whole debate swept under the carpet. For this summary dismissal CR alleges four reasons:

1. '...it is a peculiarly American phenomenon.'
2. '...it has been extensively criticized in several recent books.'
3. '...mainly because it is best illuminated indirectly by ... the earlier episodes associated with Darwin.'
4. '...the current situation is confused by association with right-wing North American politics.'

Let us take a close look at these:

1. The statement is obviously untrue. CR seems strangely unaware that there was an Evolution Protest Movement in Britain 30 years before Henry Morris appeared on the scene, and there are now strong independent organisations in Australia, Korea, India, Japan, Germany, Holland, Spain, South Africa, plus two British groups headed by university Professors. Creationist literature is

published in 18 major languages, including Russian, and a European Conference is planned for 1986. Granted, the first big ‘push’ came from the USA; but those who pooh-poohed D.L. Moody in the 1860s, and Billy Graham in the 1940s, had to admit later that they had failed to read the signs of the times. ‘Can any good thing come out of America?’ ‘Yes!’

2. Among recent books ‘extensively criticising’ creationism, Philip Kitcher’s *Abusing Science*’ is one of the best known — published (not surprisingly) by the Open University. CR assumes that the criticisms are well-founded, but many competent scientists think otherwise. Robert Clinkert, a Superintendent of Schools, whose doctoral thesis was in the Philosophy of Science, concludes his 23-page review with these words: ‘Kitcher’s book reveals that the anti-creationist movement is resorting to deception and sophistry as debate strategies.’

Almost every Christian pioneer movement has been criticised in its early stages, from Peter’s association with Cornelius to the China Inland Mission and William Booth. 65 years ago a newly-formed breakaway student group was extensively criticised by those who chose to remain within the Student Christian Movement. The new group was ignored and ridiculed, but God was with them, and today they are the UCCF/IVP. Let those who in their turn are tempted to criticise and ridicule, ponder the lessons of church history.

3. The idea that modern creationism is *best* illuminated from Victorian times is a subjective notion that has to be proved, not taken for granted. The Irish Question cannot be solved by Mr. Gladstone’s speeches in the 1880s, nor the Evolution Question by early converts to Darwinism. Time marches on, and nowhere so fast as in science. But CR has drunk deep at James R. Moore’s *Post-Darwinian Controversies 1870-1900* and seeks to wrest from this ancient battlefield proof that one can now, in 1986, be at the same time both a good Calvinist and a good Darwinian. (It is a pity that CR has not read, or shows any acquaintance with Prof. John Whitcomb’s trenchant review of Moore in *Grace Theological Journal*, Spring 1981. Whitcomb shows that Moore blunders hopelessly as an amateur theologian).

CR introduces Henry Drummond (2 pages) and Charles Kingsley (3 pages) as earnest Christians who accepted evolution; and (trump card) no less than four pages are devoted to proving that Charles H. Spurgeon failed ‘to launch a sustained onslaught on evolution’. Therefore, we are left to conclude, modern evangelicals have no right to rush in where the Metropolitan Tabernacle ‘angel’ feared to tread.

The fallacy of all this reasoning lies, of course, in the 100 years' interval and the total failure of Darwin's predictions to be substantiated by transitional fossils, breeding experiments, and especially by microbiology (M. Denton's *Evolution: A Theory in Crisis*, 1985, administers the *coup de grâce* ). If Spurgeon had read *The Genesis Flood* and other creationist books, I have no doubt that he too (like the present incumbent of the Met. Tab) would have perceived that evolution is indeed 'the great brain robbery'. When millions of children are being force-fed with lies in the name of Science, would he have stayed silent?

All this Victoriana acts as a smokescreen to keep out of sight scientists like Prof. W.R. Thompson FRS, who had the courage (1956) to denounce Darwinism as unhelpful to biological research; Douglas Dewar, whose *Transformist Illusion* has never been refuted; and many others. In the Epilogue, Michael Faraday is portrayed as a model Christian scientist, but even here CR grinds his axe to hew creationists. Faraday was 'reticent about reconciling science and Scripture ... there is little evidence that he was in the least troubled by earlier speculation about the age of the earth, the universality of the Flood, or even pre-Darwinian ideas on evolution.' So, if this great man never attacked Darwin, how dare we lesser mortals do so? — that is clearly CR's message.

Contrariwise, looking back on Church History we find that the Holy Spirit seems to emphasise different truths at different times, and even the best leaders have blind spots. Augustine's views on infant baptism are not popular today, and Luther's attitude to the unevangelised heathen was less biblical than William Carey's. So it is possible that Faraday's attitude to science/Scripture may have been less than perfect; but in any case to his own Master he stands or falls. We shall be judged by a different standard, enjoying as we do the benefit of hindsight and the researches of many who have exposed the frauds and fallacies of Darwinism.

4. '...confused by right-wing politics.' Another case of misinformation. Over the past five years I have attended many creation conferences, seminars and lectures in the USA, and I have never heard a word about politics. Granted, it is a standard trick of American anti-creationists to make capital out of Ronald Reagan's anti-evolutionary pronouncements, and Jerry Falwell's. But to reject creationism because these gentlemen favour it would be about as sensible as to reject Newton's *Principia* because he was a Tory.

Now let us turn to some other features which invite comment:

5. The great name of Calvin is invoked on the side of a non-literal interpretation of Genesis when in fact it is certain from his Commentary that he was a literalist of the literalists. One quotation will suffice: ‘...audacious scribblers have no axiom more plausible than that faith may be free and unfettered, so that it may be possible, by reducing everything to a matter of doubt, to render Scripture flexible (so to speak) as a nose of wax’ (p. xxviii). I wonder what he would have made of CR’s statement\*\* that ‘for Moses and his contemporaries the distinction between history and myth *did not exist*’ and that the literal interpretation of Genesis, which has stood for 3,000 years, is ‘wooden’ and ‘arbitrary’!

Also, it is entirely gratuitous to assume that Robert Boyle (p.150) would have been persuaded (that I say not deceived) by the specious argumentation of Darwinian geologists and biologists. Boyle’s science was experimental, practical and useful — totally different in kind from their unverifiable hypotheses and extrapolation.

6. Perhaps the most surprising omission in a book by a science *historian* is his treatment of Henry Morris, who suddenly appears — like Melchizedek, without genealogy or antecedents — in 1974 as the author of *The Troubled Waters of Evolution*. (Incidentally, CR misses the point of the title: Morris meant not the obvious fact that the theory *causes* trouble, but that evolution is *in* trouble, attacked on every side). Morris’s much better known and more influential *The Genesis Flood*, co-authored with Prof. John Whitcomb in 1961 and reprinted 20 times, is not even mentioned. No attempt is made to answer its massive, cumulative arguments for a universal Flood. For CR the last word on this subject was spoken by Adam Sedgwick 150 years ago in his ‘recantation’.

Darwin’s biography, which every schoolboy knows, is rehearsed yet again (4 pages), whereas Morris is dismissed in 8 lines. The formation of the Creation Research Society, the university debates of the 1970s, the world-wide proliferation of creationism — all these are passed over in silence, a silence all the more inexplicable when one finds that CR is right up to date on the Bishop of Durham (1984) and Don Cupitt.

\*\* in a letter to your reviewer

7. Worse still, the last chapter's title is *Floodtide*. Here CR quotes Madame Pompadour's absurd remark, 'After me the deluge', and repeats this *misapplication* of Scripture with regard to the 'deluge' of scientific information by which 'all familiar features are swept away and civilization is submerged and all but destroyed as in the days of Noah.' Thus the real, sudden, destruction of a wicked world — adduced by the Lord Jesus Christ as a *true* parallel to His coming again — is likened by a *false* parallel to the slow changes wrought over many decades by discoveries and inventions ... an analogy wholly misconceived and misleading. CR also calls a nuclear holocaust 'the ultimate tragedy for the human race', forgetting, perhaps, that it is exactly what the apostle Peter foretold for the End of the World — not with a whimper but a bang. The reader is lulled into a false sense of security and might well address the author as follows:

'OK — some Christians were good scientists; but obviously the first chapters of the Bible are not (according to you) literally true. So why should the last chapters be? You interpret the beginning of the Book non-literally and I interpret the end non-literally. What's the difference? Heaven and Hell — you make your own, here on earth, that's all there is. All that stuff about gates of gold and lakes of fire is picturesque symbolism for primitive people who couldn't tell the difference between fact and fiction ... just like your six-day creation, Adam's rib, Noah's flood — the lot. You have accepted science's picture of the past as correct; I accept science's picture of the future. That's logical, isn't it?'

What a pity that an author whose long-sight is so sharp should fail to see things near at hand — what God is doing in our own day and age. CR rightly affirms that 'Desperate attempts to evacuate the Christian faith of its essential content so as not to offend the 'scientific man', are not merely misguided but leave most scientists profoundly unimpressed. In the light of scientific progress this century, such theological acrobatics are quaintly anachronistic' (p. 252). But he does not perceive that his own book is yet one more 'desperate attempt', because God's judgement on the antediluvian world is an essential part of the Christian faith. An American anti-creationist\*\* has written: 'The Great Deluge is the Grand Delusion of creationism, an albatross hung about their necks by the ancient Hebrew scribes who adapted an already-ancient Middle Eastern flood myth and recorded it in Genesis.'

\* \* R.J. Schadewald in *Scientists confront Creationism*, p.288, ed. L.R. Godfrey, published by W.W. Norton, NY, (1983).

This position is at least logical and to be expected in an unbelieving scientist. But CR appears to believe *both* in the historicity of Noah's flood *and* that it left no visible marks on the surface of the earth, nothing at all for the geology textbooks. If this is not a theological somersault, what is? And how many scientists have been impressed?

The anti-creationists are, in fact, ridiculing the Lord Jesus Christ and His warning of a catastrophic return to judge the world. At such a time there is, I suggest, only one place for a true disciple: in the pillory with Him, facing the mocking crowd, and patiently pointing out the error of their 'science falsely so called'. From this point of view *Cross-currents* is a sad disappointment.

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### **OXFORD UNION DEBATE**

**Friday 14th February 1986**

Huxley Memorial Debate was held at the Union Society, Oxford University on the motion "that the doctrine of creation is more valid than the theory of evolution." Proposing were Dr. A. E. Wilder-Smith and Professor E. H. Andrews, and opposing were Professor Maynard-Smith and Dr. R. Dawkins. Also two students spoke for each side, the motion was lost 198 to 115. David C. C. Watson helped to arrange the debate and recordings (3 cassettes) are available price £5.00 from Brian Grantham-Hill, 9 Courtland Road, Shiphay, Torquay, Devon TQ2 6JU.



## **Algeny**

**Jeremy Rifkin, Penguin, (1984)**

**reviewed by J.H. John Peet**

This is an unusual but intriguing book. It starts off by surveying what is happening in the field of genetic engineering and leaves the reader disturbed and perplexed and frightened. Rifkin then examines how we come to find this acceptable. He finds its beginnings, not surprisingly, in Darwinism.

At the outset he identifies a major flaw in modern scientific thought: 'specialised bodies of thought and knowledge ... are influenced by the social and cultural contexts in which they are produced.' But, he points out, the scientific community rejects this for itself (page 31). It is not immune. 'If our science is influenced by time, place and circumstance, then we are in big trouble' is the consensus view. However, 'By the very standards scientists choose to limit what may properly fall under the purview of their discipline, the theory of evolution does not qualify' (page 118).

On the matter of natural selection, Rifkin shows that its supposed applicability to evolution is anthropocentrism — the attempt to project man's own behaviour onto the rest of nature: 'one would be hard-pressed to assume that the motives undergirding human acquisitiveness find their counterpart in nature' (page 78 and compare page 108). Unless this can be justified, there is a fatal flaw in this proposed mechanism for evolution.

But, to question Darwinism is to have one's sanity immediately questioned (page 112). He concurs that the scientific community would rather continue to believe that a bad theory is better than no theory. Rifkin reviews the supposed evidences for evolution such as fossilisation and breeding. The former has always been a problem for the evolutionist and the difficulties have not reduced with the passage of time (pages 122 - 130). Of mutations, the evolutionary analogue of breeding, he concludes that they have a stabilising rather than a transforming function. Darwin's conclusions are unsound: 'he confused more lucrative with more fit' (pages 130 - 136).

Rifkin then develops his own view of biology. He proposes a new temporal concept. 'How we perceive nature, then, is determined by the temporal perspective from which we are observing it' (page 185). Like creationists, he sees the need for a new philosophy for biology. Unlike creationists, he sees time as the answer,

not a perception of divine creation. But, unlike neo-Darwinists, his philosophy of time is not one of an ever-increasing time field. Rather, following Whitehead, 'a proper sense of timing is obviously indispensable to survival and success' (page 186). Every organism anticipates the future and displays some degree of purpose. So, evolution is not abandoned as mindless.

Professor Chomsky once wrote, expressing the evolutionist's dilemma, 'The process by which the human mind has achieved its present state of complexity is a complete mystery.' (*Psychology Today*, 1969). In fact says Rifkin, nature is mind — so there is no problem in explaining the evolution of the mind! Every living thing is a small reflection of the total mind that makes up the universe.

Fraser has developed this concept (page 189). The evolutionist's assessment of increasing complexity is somewhat arbitrary. Under this temporal concept, 'each species up the evolutionary chain ... is better equipped to anticipate longer futures and a greater multiplicity of novelty in its environment.'

Rifkin quotes Wilder-Smith with approval in his attack on chemical evolution (page 150) but ignores his contribution to the debate on the cybernetic approach (pages 196 - 215). This, according to Rifkin, is the operational counterpart of Whitehead's view of an organism. Information feedback and processing it is analogous to the ability to anticipate and respond to changing conditions with time.

What are the implications of this? (1) A new rationale is provided for the manipulation of the environment (page 227) because there is a new level of interaction between living things. Self-sufficiency is achieved by exchanging information with the environment. (2) There is a removal of boundaries between species (page 228). All living things are reduced to information flows. (3) Eugenics, biological engineering, is justified, not for political gains but for increasing efficiency (page 231). So, not to improve performance of a living organism whenever technically possible is considered tantamount to committing a sin. (4) There is a new concept of power (page 237). We are the power (page 244). As the author says, 'We no longer feel ourselves to be guests in someone else's home and therefore obliged to make our behaviour conform with a set of pre-existing cosmic rules. It is our creation now. We make the rules ... we are the kingdom, the power and the glory for ever and ever.' (page 244)

The book is frightening in that it misses the basic flaw of evolutionary theory: the Creator Himself. It is frightening in that it gives a new legitimacy to environmental manipulation. It is frightening because one sees the fulfilment of Biblical warnings — even those in the early chapters of Genesis as man makes himself god and assumes all power. These are the implications of Evolution (however we dress it up). How much we need to state clearly the implications of creation.

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